

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

1. (Currently Amended) An image pickup apparatus comprising:

a solid-state imaging device for generating an image signal by carrying out photoelectric conversion of individual pixels at different timings;

an amplifier for amplifying the image signal; and

an automatic level adjusting section for regulating a level of the image signal at a specified level by automatically controlling a charge storage time of said solid-state imaging device and a gain of said amplifier,

wherein said automatic level adjusting section comprises:

a first setting section for setting the charge storage time of said solid-state imaging device at an integer multiple of half a reciprocal of a frequency of a first power supply;

a second setting section for setting the charge storage time of said solid-state imaging device at an integer multiple of half a reciprocal of a frequency of a second power supply;

a switching section for selecting one of said first setting section and said second setting section to set the charge storage time of said solid-state imaging device;

an accumulating section for accumulating a plurality of pixel values of a predetermined line in a frame;

an index calculating section for calculating inter-frame variations of accumulation values obtained by said accumulating section, and for calculating an index for detecting the flicker from the inter-frame variations of a predetermined number of frames; and

a flicker detecting section for detecting flicker in response to the index of said index calculating section, and for controlling said switching section in response to the ~~detection~~ result-detecting of the flicker.

2. (Currently Amended) The image pickup apparatus according to claim 1, wherein

said first setting section sets the charge storage time of said solid-state imaging device at an integer multiple of 1/100 second, and

said second setting section sets the charge storage time of said solid-state imaging device at an integer multiple of 1/120 of a second.

3. (Currently Amended) The image pickup apparatus according to claim 1, wherein said index calculating section calculates the index by accumulating the variations of accumulation values of individual frames over a predetermined number of frames, over which accumulation values are obtained by said accumulating section.

4. (Currently Amended) The image pickup apparatus according to claim 3, wherein said flicker detecting section compares the index obtained when said first setting section is in operation with the index obtained when said second setting section is in operation, and controls said switching section in response to a compared result of the comparison.

5. (Currently Amended) The image pickup apparatus according to claim 3, wherein said flicker detecting section compares the index obtained when one of said first setting section and said second setting section is in operation with a predetermined threshold value, and controls said switching section in response to a compared result of the comparison.

6. (Original) The image pickup apparatus according to claim 1, wherein said index calculating section comprises:

a plurality of memories for storing indices calculated from accumulation values obtained by said accumulating section over a predetermined number of frames;

a sum calculating section for calculating a sum of the indices of the predetermined number of frames; and

a maximum differential calculating section for calculating a difference between a maximum value and a minimum value of the indices of the predetermined number of frames.

7. (Original) The image pickup apparatus according to claim 1, further comprising a threshold value setting section for setting a predetermined threshold value to be supplied to said flicker detecting section in response to the image signal captured by said solid-state imaging device, wherein said flicker detecting section detects the flicker by comparing the index with the threshold value.

8. (Currently Amended) The image pickup apparatus according to claim 7, wherein said threshold value setting section comprises a look-up table—, and sets the threshold value corresponding to the image signal by referring to the look-up table.

9. (Original) The image pickup apparatus according to any one of claim 1, further comprising a masking section for masking a control signal supplied from said flicker detecting section to said switching section to halt the switching operation of said switching section.

10. (Currently Amended) The image pickup apparatus according to claim 9, wherein said masking section masks the control signal to said switching section in response to an accumulation value obtained by said accumulating section, the accumulation value being obtained by accumulating the pixel values over all or part of a frame of the image signal captured by said solid-state imaging device.

11. (Original) The image pickup apparatus according to claim 9, wherein said masking section masks the control signal to said switching section in response to the charge storage time of said solid-state imaging device.

12. (Original) The image pickup apparatus according to claim 9, wherein said masking section masks the control signal to said switching section in response to a gain of said amplifier.

13. (Currently Amended) An automatic level adjusting method applied to an image pickup apparatus including a solid-state imaging device for generating an image signal by carrying out photoelectric conversion of individual pixels at different timings, and an amplifier for amplifying the image signal, said automatic level adjusting method regulating a level of the image signal at a specified level by automatically controlling a charge storage time of said solid-state imaging device and a gain of said amplifier, and said automatic level adjusting method comprising the steps of:

accumulating a plurality of pixel values of a predetermined line in a frame;

calculating inter-frame variations of accumulation values, and calculating an index for detecting flicker from the inter-frame variations of a predetermined number of frames;

detecting the flicker in response to the index; and

setting, in response to the ~~detection result~~ detecting of the flicker, the charge storage time of said solid-state imaging device at one of an integer multiple of half a reciprocal of a frequency of a first power supply and an integer multiple of half a reciprocal of a frequency of a second power supply.

14. (New) An image pickup apparatus comprising:

a solid-state imaging device that executes photoelectric conversion of pixels to generate an image; and

a detecting unit that detects the power supply frequency of a light source that illuminates an environment of the image, the detected power supply frequency being one of a plurality of candidate frequencies; and

a control unit that controls a charge storage time for the solid-state imaging device to be a function of the detected power supply frequency.

15. (New) The image pickup apparatus according to claim 14, wherein the detecting unit detects the power supply frequency according to inter-frame variations of pixel values.

16. (New) The image pickup apparatus according to claim 15, wherein:

the detecting unit detects the power supply frequency as being one of two candidate frequencies,

for a chosen one of the candidate frequencies, an index is calculated by:

setting the charge storage time of the imaging device as a function of the chosen candidate frequency;

accumulating a plurality of pixel values in a predetermined frame line for each of a plurality of frames;

calculating inter-frame variations of the accumulated pixel values; and

calculating the index based on the calculated inter-frame variations, and

the detecting unit uses the index to determine whether flicker occurs when the charge storage time is set as a function of the chosen candidate frequency.

17. (New) The image pickup apparatus according to claim 16, wherein

the detecting unit determines whether flicker occurs by comparing the index calculated for the chosen candidate frequency with an index calculated for the other candidate frequency,

if the detecting unit detects that flicker does not occur, the power supply frequency is detected as being the chosen candidate frequency, and



if the detecting unit detects that flicker occurs, the power supply frequency is detected as being the other candidate frequency.

18. (New) The image pickup apparatus according to claim 16, wherein

the detecting unit determines whether flicker occurs by comparing the index calculated for the chosen candidate frequency with a threshold,

if the detecting unit detects that flicker does not occur, the power supply frequency is detected as being the chosen candidate frequency, and

if the detecting unit detects that flicker occurs, the power supply frequency is detected as being the other candidate frequency.

19. (New) The image pickup apparatus according to claim 16, wherein, in order to calculate the index of the chosen candidate frequency, the charge storage time is set as an integer multiple of half the reciprocal of the chosen candidate frequency.

20. (New) The image pickup apparatus according to claim 14, wherein the control unit controls the charge storage time to be

an integer multiple of half the reciprocal of the detected power supply frequency.

21. (New) The image pickup apparatus according to claim 20, wherein:

the detecting unit detects the power supply frequency as being one of a first and second candidate frequency, and

the image pickup apparatus further comprises:

a first setting unit operable to set the charge storage time to be an integer multiple of half the reciprocal of the first candidate frequency;

a second setting unit operable to set the charge storage time to be an integer multiple of half the reciprocal of the second candidate frequency; and

a switching unit that selects one of the first and second setting units based on the detected power supply frequency, the charge storage time being set by the selected one of the first and second setting units.

22. (New) The image pickup apparatus of claim 21, further comprising:

a masking unit operable to halt operation of the switching unit by masking a control signal supplied by the detecting unit to the switching unit.